

## ABSTRACT OF THE DISCLOSURE

A coherent laser radar (lidar) device is described. The device has a transmitter portion that comprises a single wavelength laser source, a conversion means (such as an electro-optic modulator) for producing a combined light beam that comprises at least two component light beams of discrete wavelength from the output of said single wavelength laser source, and transmit optics to direct the combined light beam to a remote target. Each component light beam of the combined light beam traverses the same optical path from the single wavelength laser source to the transmit optics. The device is used to make differential absorption measurements.